

WHAT IS CLAIMED IS:

1. A device for preventing high voltage from acting on a load driven by a bicycle dynamo, wherein the device comprises:

a sensor circuit that senses an operating signal derived from the dynamo, wherein the operating signal corresponds to a voltage generated by the dynamo;

wherein the sensor circuit provides a control signal when the operating signal passes a threshold value; and

a control circuit operatively coupled to the sensor circuit and adapted to be coupled between the dynamo and the load to control the current delivered to the load in response to the control signal.

2. The device according to claim 1 wherein the control circuit shunts current away from the load in response to the control signal.

3. The device according to claim 1 wherein the sensor circuit is structured to sense a voltage generated by the dynamo.

4. The device according to claim 1 wherein the sensor circuit is structured to sense a frequency generated by the dynamo.

5. The device according to claim 1 wherein the sensor circuit includes a Zener diode that receives the operating signal derived from the dynamo.

6. The device according to claim 5 wherein the Zener diode is adapted to be coupled between first and second output terminals of the dynamo.

7. The device according to claim 5 wherein the Zener diode provides the control signal.

8. The device according to claim 7 wherein the control circuit includes a thyristor that receives the control signal from the Zener diode.

9. The device according to claim 8 wherein the control signal is applied to a gate terminal of the thyristor.

10. The device according to claim 9 wherein the thyristor is adapted to be coupled between first and second output terminals of the dynamo.

11. The device according to claim 10 wherein the Zener diode is adapted to be coupled between the first and second output terminals of the dynamo.

12. The device according to claim 1 wherein the control circuit includes a thyristor that receives the control signal from the sensor circuit.

13. The device according to claim 12 wherein the control signal is applied to a gate terminal of the thyristor.

14. The device according to claim 12 wherein the thyristor is adapted to be coupled between first and second output terminals of the dynamo.

15. The device according to claim 1 wherein the sensor circuit and the control circuit are integrally constructed with the load.

16. The device according to claim 1 wherein the sensor circuit and the control circuit together are adapted to be coupled between the dynamo and the load.

17. The device according to claim 1 wherein the sensor circuit and the control circuit are integrally constructed with the dynamo.

18. The device according to claim 1 wherein the sensor circuit comprises:  
a positive side sensor circuit that senses a first operating signal derived from a positive cycle of the dynamo; and

a negative side sensor circuit that senses a second operating signal derived from a negative cycle of the dynamo; and

wherein the control circuit comprises:

a positive side control circuit that controls the current delivered to the load during the positive cycle of the dynamo; and

a negative side control circuit that controls the current delivered to the load during the negative cycle of the dynamo.

19. The device according to claim 18 wherein the positive side sensor circuit comprises a first Zener diode that provides a positive cycle control signal, wherein the negative side sensor circuit comprises a second Zener diode that provides a negative cycle control signal, wherein the positive side control circuit comprises a first thyristor that receives the positive cycle control signal, and wherein the negative side control circuit comprises a second thyristor that receives the negative cycle control signal.

20. The device according to claim 19 wherein the first Zener diode provides the positive cycle control signal to a gate terminal of the first thyristor, and wherein the second Zener diode provides the negative cycle control signal to a gate terminal of the second thyristor.